

## 1. PROPOSED STRATEGY

### 1.1 BASIS OF STRATEGY / KEY ISSUES

Marina Projects has been appointed by Gwynedd Council to prepare a dredging strategy for Pwllheli Harbour over the next 10-15year period. The development of the Strategy is now at an advanced stage (final draft) and this report and associated presentation to the Harbour Consultative Committee forms a key part of the consultation.

The key issues that have shaped the development of the strategy are outlined below:

1. Dredging in Pwllheli Harbour is problematic and expensive due to the prevailing constraints. Any dredging requires a local disposal option if the solution is to be effective.
2. There are three distinct zones within the harbour, The Harbour Entrance, the Access Channel and Marina Basin
3. The main source of accretion in the harbour is the coastal processes which deposit silts, sands and gravel throughout the Harbour. As a consequence of the natural processes the make up of the material in the Entrance, Access Channel and Marina Basin varies – from a high content of gravel in the Harbour Entrance to a sandy/silt mix in the Marina Basin
4. The Marina Basin, Access Channel and Harbour Entrance were all subject of a significant over-dredge when created.
5. There are clear indications that a wide Entrance/Access Channel increases the level of accretion throughout the Harbour.
6. There has never been any dredging in the Access Channel and the navigation marks do not now accurately reflect the actual position of the access channel.
7. The design depth in the marina basin provides additional depth beyond that required for the majority of vessels.
8. The Stilling Lagoon is essential to the future of dredging within Pwllheli Harbour. There is a need to address the licensing of sites where material is deposited or stockpiled for future re-use.

At the heart of the strategy therefore there is a need to reduce to the lowest practical level the annual maintenance dredging burden. Furthermore it is considered appropriate that any future strategy maintains a primary focus on ensuring that the Harbour Entrance and Approach Channel are maintained and adequately marked to ensure their use can be optimised by all harbour users.

### 1.2 Summary of Recommendations

The following section provides a summary of the 23 detailed recommendations contained in the main Dredging Strategy Report.

***Recommendation 1& 2 - Continue with the annual harbour wide hydrographic surveys and assessment of the ongoing accretion rates and dredging works.***

***Recommendation 3 & 4 – Ensure future dredging optimises the width of the channel at the Harbour Entrance. In this respect the profile outlined on Dwg No. CPF/1191/Spec Rev B should be adopted and the current methods retained***

***Recommendation 5 – A longer term aspiration (only once a viable and sustainable strategy is in place) will be to review the potential to increase the depth in the Harbour Entrance (and Access Channel) by 0.5m***

***Recommendation 6, 7, 8 and 9 – The Access channel profile outlined on Drg No. CPF/1191/Spec Rev B should be adopted and dredging in the channel undertaken as a priority also the navigation marks identifying the position of the access channel should be re-established. In due course (but only provided that the additional dredging burden can be dealt with by the dredging strategy) consideration should be given to an increase in channel width from 25m to 30m and to positioning of the access channel to reflect the natural deeper water.***

***Recommendation 10 & 12 – Dredging work in the marina is combined with dredging in the access channel with the channel being given short-term priority.***

***Recommendation 11 and 13 – Adopt an alternative dredge depth profile for the marina basin which better reflects the nature of the vessels berthed in the marina. In the longer term give consideration to premium pricing of the deeper berths.***

***Recommendation 14,15 and 16 – Undertake investigations to confirm the profile of material in the stilling lagoon – identify the options for reuse and cost effective disposal. Remove suitable material to stockpile to free-up capacity and establish an annual plan to provide adequate capacity.***

***Recommendation 17 and 18 – Ensure the requisite permits and licences are in place to authorise the stilling lagoon and associated activities. Provide for adequate maintenance and security of the lagoon.***

***Recommendation 19 & 20 – Undertake a contractor selection process to identify suitably experienced professional organisations to undertake maintenance dredging works. Consider the establishment of a comprehensive term contract to deal with maintenance dredging, management of lagoon capacity, maintenance works to relevant harbour infrastructure, licences and consents, survey works***

***Recommendation 21 & 22 - The Council owned Nessie Dredger and associated equipment can no longer be considered suitable for operational service in Pwllheli Harbour. The Council owned Syrfewr workboat is likewise surplus to requirements The recommendation is that the dredger and equipment is offered for sale / disposal.***

***Recommendation 23 - Once the dredging strategy is confirmed, review the basis of existing Shoreline Management Plan, Appropriate Assessment and Environmental Impact Assessments to ensure they remain fit for purpose and to ensure impacts as a result of any changes to dredging and disposal methods are noted. Assuming these changes remain negligible or manageable the assessments can simply be updated accordingly. Update all assessments and secure appropriate Licences and Consents***

### 1.3 Funding

It is clear that an amount of work is required to bring the harbour areas back to sustainable levels such that the accretion levels provide for a manageable baseline against which future maintenance dredging can be planned. In the short term dredging is required to reinstate the proposed design levels to the Entrance, Approach Channel and Marina Basin. Over time the significant over dredge and take-up of over provision of depth within the marina basin has distorted the dredging burden both in terms of the volume of material to be removed and the

associated costs. As importantly the lack of recycling of the material within the stilling lagoon demands expenditure related to the creation of some spare capacity and maintenance of necessary capacity into the future.

An initial appraisal of an annual dredging budget amounts to some £182,000 per annum and this assumes that dredging is carried out each winter; it is notable that over a third of the cost is associated with dealing with the material in the stilling lagoon. It may prove possible to undertake maintenance dredging every two years, thus reducing the impact of mobilisation costs and providing better value for money. This will in large part be dependent upon ensuring that sufficient capacity can be created within the stilling lagoon. It is absolutely clear that capacity in the stilling lagoon is key to the strategy and identifying cost effective ways to re-use and/or dispose of the material will be one of the key budgetary constraints.

With respect to timing it is envisaged that the strategy will be established for the winter 2009/10 dredging. This is due to a need to resolve an amount of outstanding consultation e.g. with CCW, EA and the Harbour Consultative Committee and also the requirement to resolve the licensing requirements, particularly for the stilling lagoon. In the meantime it is envisaged that the following actions will occur over the next 6-9 months:

- Annual hydrographic survey and updating of the factual sedimentation assessments
- If necessary carry out limited dredging in the Harbour Entrance to maintain the design profile
- Insert expression of interest in suitable publications, carry out a contractor appraisal exercise and identify a preferred contractor
- Obtain all necessary waste regulation licences - new legislation e.g. Environmental Permitting Regulations, April 2008
- Revisit and review all environmental assessments as necessary
- Make an application to WAG for grant aid to support a nourishment strategy.
- Prepare a dredging specification and contract documents
- Complete rip rap protection to the seaward side of the stilling lagoon bund
- Complete the replacement of timber posts with galvanized steel on the lagoon security fence
- Carry out comprehensive repair works to the bull head rail groyne.
- Explore ways of creating spare capacity in the stilling lagoon to include undertaking the trial proposed at Recommendation 14.

A budget for the 2008/09 dredging related works has been prepared and this amounts to some £88,000 assuming it is necessary to conduct limited dredging works in the Harbour Entrance.

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